CLAIMS

1. A fuel cell comprising:

a membrane electrode assembly comprising an electrolyte membrane and a pair of porous electrodes provided on both sides of the electrolyte membrane; and

first and second separators sandwiching the membrane electrode assembly, each of the first and second separators being formed to have, on its surface opposite to the membrane electrode assembly, a gas flow path and a rib defining the gas flow path, wherein

the rib of at least one of the first and second separators is provided with a projection for pressing the porous electrode.

2. The fuel cell as defined in claim 1, wherein the projection is formed along the entire length of the rib.

3. The fuel cell as defined in claim 2, wherein a plurality of the projections are provided in parallel with each other on the rib.

4. The fuel cell as defined in claim 1, wherein a plurality of the projections that differ in at least one of a height and a width thereof are provided on the rib.

5. The fuel cell as defined in claim 1, wherein at least one of a height and a width of the projection continuously changes along the longitudinal direction of the rib.

6. The fuel cell as defined in claim 1, wherein the ribs of the first and second separators, which are located opposite to each other, are respectively provided with the projections, wherein the projections are positioned opposed to each other.

7. The fuel cell as defined in claim 1, wherein the ribs of the first and second separators, which are located opposite to each other, are respectively provided with the projections, wherein the projections are positioned shifted from each other.

8. The fuel cell as defined in claim 1, wherein the ribs of the first and second separators, which are located opposite to each other, are respectively provided with the projections, and the number of the projections on each of the ribs differs from each other.

9. The fuel cell as defined in claim 1, wherein the projection is configured to be in

one of flat face contact, curved face contact, point contact or line contact with the porous electrode.

10. The fuel cell as defined in claim 1, wherein the projection is made of material different from that of the first and second separators.

11. The fuel cell as defined in claim 1, wherein the width of the projection is the same as that of the rib.

12. The fuel cell as defined in claim 1, wherein, on at least one of the first and second separators, a plurality of gas flow paths are formed in parallel with each other to form a gas flow path bundle, wherein

the projection is provided on an outermost rib that defines the gas flow path bundle.

13. The fuel cell as defined in claim 1, wherein, on at least one of the first and second separators, a plurality of gas flow paths are formed in parallel with each other to form a gas flow path bundle, the gas flow path bundle is formed in a serpentine shape, wherein

the projection is provided on the rib near a winding portion of the gas flow path bundle.

14. The fuel cell as defined in claim 1, wherein a pair of interdigitated flow paths are formed on at least one of the first and second separators, each of the interdigitated flow paths includes a main flow path and a plurality of branch flow paths branched from the main flow path, the branch flow paths of the pair of the interdigitated flow paths are arranged alternately along the longitudinal direction of the main flow path, wherein

the projection is provided on the rib positioned at an end of one of the branch flow paths.

15. The fuel cell as defined in claim 1, wherein a pair of first interdigitated flow path and second interdigitated flow path are formed on at least one of the first and second separators, each of the first and second interdigitated flow paths includes a main flow path and a plurality of the branch flow paths branched from the main flow path, the branch flow paths of the first and second interdigitated flow paths are arranged alternately along the longitudinal direction of the main flow path of one of the first and second interdigitated flow paths;

at an end of the main flow path of the first interdigitated flow path, a supply port is provided for supplying gas, and at the other end of the main flow path of the second interdigitated flow path, a discharge port is provided for discharging gas; and

the projection is provided on a part of the rib located between the branch flow paths of the first and second interdigitated flow paths and on a side of the discharge port with respect to the branch flow paths of the second interdigitated flow path.

16. The fuel cell as defined in claim 12, wherein the projection is formed to be wider on the rib downstream.

17. The fuel cell as defined in claim 12, wherein the projection is formed to be taller on the rib downstream.

18. The fuel cell as defined in claim 15, wherein the projection is formed to be wider on the rib downstream.

19. The fuel cell as defined in claim 15, wherein the projection is formed to be taller on the rib downstream.

20. The method of controlling gas distribution in a fuel cell which includes; a membrane electrode assembly including an electrolyte membrane and a pair of porous electrodes provided on both sides of the electrolyte membrane, and a pair of separators sandwiching the membrane electrode assembly, each of the separators being formed to have, on its surface opposite to the membrane electrode assembly, a gas flow path and a rib defining the gas flow path, the rib having a contact portion being in contact with the membrane electrode assembly, the method comprising;

having a part of the contact portion of the rib projected; and

pressing a part of the porous electrode with the projected part of the contact portion by sandwiching the membrane electrode assembly with the separators.